

From:

Gravatt, Dan

Sent:

Monday, May 19, 2014 2:50 PM

To:

Krueger, Rov

Subject:

Action Required: review health and safety plan

Attachments:

Bridgeton IB Workplan HASP only.pdf

Roy,

Would you review the attached HASP for my West Lake Landfill site? It is a generic HASP but is incorporated into a work plan for some pre-construction work for installing a subsurface barrier in a landfill cell there. Let me know if you need further background information for your review; however, note that this site is in Litigation Hold so you must preserve all documents, notes, emails, etc INDEFINITELY.

If at all possible I'd like your feedback on this document by Monday, June 2. Call with any questions.

Sincerely,
Daniel R. Gravatt, PG
US EPA Region 7 SUPR/MOKS
11201 Renner Boulevard, Lenexa, KS 66219
Phone (913) 551-7324

Principles and integrity are expensive, but they are among the very few things worth having.

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40505865 Superfund

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Appendix C:

Bridgeton Landfill Health and Safety Plan

Bridgeton Landfill Health and Safety Plan

13570 St. Charles Rock Rd. Bridgeton, Missouri 63044

May 9, 2014

Bridgeton Landfill, LLC.

13570 St. Charles Rock Road Bridgeton, Missouri 63044 Telephone: (314) 744-8166 Facsimile: (314) 739-2588

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1.1 INTRODUCTION

The purpose of this site-specific Health and Safety Plan (HASP) is to:

- Identify the health and safety hazards of each phase of site operations.
- Identify the procedures to be implemented to ensure employee protection.

The information in this HASP has been developed in accordance with applicable standards and generally recognized industry practices. This document is based on site-specific information in regards to the Bridgeton Landfill, LLC. (Site) located at 13570 St. Charles Rock Road, Bridgeton, Missouri 63044.

This written program shall be made available to Bridgeton Landfill, LLC personnel; any representatives designated by the Bridgeton Landfill, LLC; any contractor or subcontractor and their representatives who will be involved with site operations; OSHA personnel; and the appropriate personnel of the regulatory agencies that permit the site including the Missouri Department of Natural Resources (MDNR) Solid Waste Management Program (SWMP) and the St. Louis County Department of Health (SLCDOH).

Periodic evaluations will be made by site personnel to determine the effectiveness of this HASP. Any deficiencies noted in the effectiveness of the HASP shall be corrected by the Site.

All records supporting the requirements of this HASP are available upon request by contacting the Project Health and Safety Officer (HSO), Derek Bouchard, at 314-302-3634.

1.2 General Considerations

The levels of protection and the procedures specified in this HASP are based on the best information available at this time, and represent the minimum health and safety requirements to be observed by all site personnel, contractor and subcontractor employees, while engaged in site activities. Additionally, the content of this HASP may change or undergo revision as additional information is obtained during the field activities. Any changes to this HASP shall be reviewed by the Project HSO for approval.

Compliance with Health and Safety Requirements

The safety of all onsite personnel is ultimately the responsibility of each employee and his or her respective employer. Subcontractors are required to provide the necessary safety equipment, medical monitoring, and safety training to their personnel in compliance with the Occupational Safety and Health Administration (OSHA) regulations provided in 29 CFR 1910.120.

It is the responsibility of each individual involved in site activities to read this document carefully. If you have any questions or concerns that you feel are not adequately addressed, please contact the Project HSO. Follow the designated health and safety procedures, be alert to the hazards associated with working on any construction site in close proximity to heavy equipment, and above all else, use common sense and exercise reasonable caution at all times.

Any contractor found to be in violation of the site health and safety requirements may be subject to a written Notice of Safety Violation (Appendix K). Any written Notice of Safety Violation will be provided to the worker and the worker's supervisor. The worker shall be required to take immediate corrective action and certify that the appropriate measures have been taken to remove the unsafe condition or practice.

1.3 Safety Personnel and Chain of Command

The requirements of this HASP will be implemented through an effective organizational structure that includes the Project HSO, site personnel, contractors, and subcontractors.

Project Health and Safety Officer (HSO)

The Project HSO shall be responsible for the overall implementation of the HASP. This shall include, but is not limited to, review and approval of the HASP, communication of this HASP to subcontractor personnel, implementation of appropriate changes to the HASP, and relating any changes through the affected organizational structure. The HSO shall also be responsible, but not limited to, the following activities:

- Perform and document a safety orientation for all individuals involved in site activities, which will serve to familiarize them with the procedures, requirements, and provisions of this HASP.
- Provide for the safety of any visitors who enter the work area.
- Order the immediate shutdown of site activities in the case of an emergency.
- Provide the safety equipment, personal protective equipment (PPE), and other items necessary for site personnel. Ensure that contractors and subcontractors have provided the same for their respective employees.
- Enforce the use of required safety equipment, PPE, and other items necessary for employee and community safety.

Site Personnel

All site personnel are responsible for their own safety as well as the safety of those around them. All site personnel shall use any equipment provided in a safe and responsible manner, as directed by the Site.

Site personnel are expected to take the following actions as appropriate:

- Suspend any operations that may cause an imminent health hazard to employees, subcontractors, or others.
- Correct job site hazards when possible to do so, without endangering life or health.
- Be vigilant for any ill effects experienced by any crewmember, especially those symptoms caused by heat stress or chemical exposure.
- Report safety and health concerns to the HSO.

Equipment Operators

All equipment operators are responsible for the safe operation of heavy equipment under their control. Operators are responsible for inspecting their equipment to ensure safe performance. Brakes, hydraulic lines, backup alarms, and fire extinguishers must be inspected during site mobilization. Equipment will be taken out of service if an unsafe condition occurs. All equipment operators are required to wear seat belts during operation.

Contractors and Subcontractors

All contractors and subcontractors shall be expected to execute their specific job duties in a safe manner, and to provide sufficient resources, personnel, and equipment to meet this expectation. To facilitate preparation for this work effort, a copy of this HASP will be provided to each contractor and subcontractor.

As discussed above, the ultimate responsibility for the health and safety of the individual rests with the individual and his or her colleagues. Each individual is responsible for exercising the utmost care and good judgment in protecting his or her own health and safety, and that of fellow workers. Should any contractor or subcontractor observe a potentially unsafe condition or situation, it is the responsibility of that individual to immediately bring the observed condition to the attention of the HSO.

Should a contractor or subcontractor find himself or herself in a potentially hazardous situation, that individual shall immediately discontinue the hazardous procedure(s) and personally take appropriate preventative or corrective action, and immediately notify the HSO of the nature of the hazard. In the event of an immediately dangerous or life-threatening situation, the contractor or subcontractor automatically has "stop work" authority.

1.4 General Procedures

The following personal hygiene and work practice guidelines are intended to prevent injuries and adverse health effects. These guidelines represent the minimum standard procedures for reducing potential risks associated with this project and are to be followed by site personnel, contractor, and subcontractor employees at all times. Individual guidelines are covered in greater detail later in this HASP.

- The "buddy system" will be used when conducting field activities. This can be accomplished through:
 - Physical proximity, i.e., within hearing or line of site of a landfill employee or HAZWOPER-trained contractor who can respond if assistance is required.
 - Access to cell-phone or radio communication with a landfill employee or HAZWOPER-trained contractor who is onsite and can respond if assistance is required.
- A multipurpose dry chemical fire extinguisher, a complete field first aid kit, and a bottle
 of emergency eyew as h solution shall be supplied by each contractor and
 immediately available to each respective contractor's project field personnel. For
 example, field support vehicles will be stocked with these items.
- Eating, drinking, smoking, taking medications, chewing gum or tobacco, etc. is prohibited in the immediate vicinity of the work area. Work area is generally defined as:
 - Any subsurface disturbance, maintenance of any piping that may contain leachate and/or gas.
 - Repair or modification of any well or subsurface point that may contain leachate and/or gas.
- Thoroughly wash hands and, if necessary, face before eating or putting anything in your mouth (i.e., avoid hand-to-mouth contamination).
- Stand upwind of sample locations whenever possible.

- Be alert to potentially changing exposure conditions as evidenced by perceptible odors, unusual appearance of excavated soils, oily sheen on water, etc.
- Be alert to the symptoms of fatigue and heat/cold stress, and their effect on the normal caution and judgment of personnel.
- Establish prearranged hand signals or other means of emergency communication when wearing respiratory equipment since this equipment seriously impairs speech communications.
- Noise may pose a health and safety hazard during work activities. A good rule of thumb to follow is that if you have to shout in order to communicate a distance of 3 feet in steady state (continuous) noise, you should be wearing hearing protection. Likewise, any impact noise from activities that are loud enough to cause discomfort would also indicate the need for hearing protection.
- Always wear an appropriate level of personal protection. Lesser levels of protection can result in preventable exposure; excessive levels of safety equipment can impair efficiency and increase the potential for incidents to occur.

1.5 Site Control Procedures

Employees and contract workers must code into the landfill site using the Prox cards that will be issued once the access control system is in place. Authorized guests and temporary contract workers must read the contractor safety orientation before accessing the sites. Those individuals will be issued temporary Prox cards, and they must code in and out of the landfill area. Authorized personnel will be required to accompany any visitors to the work site.

1.6 Site Training

Worker Competency and Experience

All personnel conducting work at this site shall have demonstrated competency in the skills and activities relevant to their work at the site. This competency may be demonstrated through continuing education, work experience, or a combination thereof. The relevant subject matter may include, but is not limited to, heavy equipment operation, hand signals, first aid, hand tool safety, electrical safety, PPE usage, material handling, and trenching and excavation.

Hazardous Waste Operator (HAZWOPER) Training and Safety Training

OSHA HAZWOPER training is not mandatory for all personnel conducting work at the site; however, all Bridgeton Landfill employees with responsibilities for leachate management must receive 40-hour HAZWOPER training pursuant to 29 CFR 1910.120. HAZWOPER training shall be conducted by a qualified training contractor. All personnel must receive this training prior to performing tasks associated with leachate management, or must receive training within six months after the date of their assignment to leachate management responsibilities. No employee may work in this area in an unsupervised position before completing the training requirements.

Bridgeton Landfill has developed a site-specific safety orientation for all employees and contract workers. Workers must review the presentation and certify that they have read and will follow all health and safety policies and procedures. Contractor supervisors are responsible for

insuring that new workers take the orientation prior to working onsite. Furthermore, Bridgeton Landfill is developing an access control system so that only workers who have taken the safety orientation have credentials to access the site.

All other site contract workers involved in leachate management must work under the supervision of an employee or contractor who is HAZWOPER trained.

Position	Job Duties	Personnel Name
Bridgeton Landfill Environmental Manager	See Appendix J: Position Descriptions.	Brian Power
Bridgeton Landfill Environmental Specialist	See Appendix J: Position Descriptions.	Bryan Sehie Mike Lambrich
Health and Safety Officer Training Coordinator	See Appendix J: Position Descriptions.	Derek Bouchard
Bridgeton Landfill Technician	See Appendix J: Position Descriptions.	Dusty Smith Ryan Ayers Ryan Daniels David Voyles Stephen Lee Devin Hummel Forrest Booth

The updated status of required HAZWOPER training is found in **Appendix I**.

Bridgeton Landfill maintains the following documents for each employee:

- The job title and written job description for each position at the facility with responsibilities for leachate management and the name of the employee filling each position.
- Training records documenting the training requirements and the training received for each employee responsible for leachate management. Appendix A and Appendix B include Acknowledgment Forms for HASP and ongoing safety training activities.
- All training records on current personnel will be kept until closure of the facility.
 Training records on former employees will be kept for at least three years from the date the employee last worked at the facility. The training coordinator is responsible for maintaining the records.

Annual Review

All personnel with responsibilities for direct management of leachate will receive an annual safety training review. A HAZWOPER 8-hour refresher course or other course specific to the hazards encountered at the site may fulfill this requirement. In addition, safety, spill prevention and spill response procedures are regularly covered during daily briefings.

Annual review of the most current contractor-training program and HASP is required for all subcontractors and their personnel each calendar year following the initial briefing. Each

calendar year, Bridgeton Landfill will update the access credential for each individual only after the individual has received annual training.

Daily Safety Briefings

During the project, at intervals not to exceed 24 hours, supplemental safety meetings shall be conducted by the subcontractor supervisor or designee to discuss work performed to date, safety incidents (if any), potential health and safety hazards associated with upcoming tasks, and necessary precautions to be taken.

Fork Lift and Aerial Lift Training

If and when used on the site, it is mandatory that fork lifts and aerial lifts only be operated and inspected by employees who have received the Industrial Powered Truck Training and the Aerial Lift Training indicated in OSHA 1910.178. These trainings require both classroom time and field time inspecting and operating the equipment. Proof of training certificates for operators who have received the training must be available for inspection at the project site. Inspection checklist forms are found in **Appendix H.**

1.7 Health and Safety Plan (HASP) Applicability

This HASP applies specifically to all activities performed at the Bridgeton Landfill, Bridgeton, Missouri. It has been prepared specifically for this project.

1.8 Incident and Close Call Reporting

Any work-related incident, injury, illness, exposure, vehicle incident, or property loss must be reported to the HSO. All incidents shall be documented using contractor-specific forms comparable to one of the forms in **Appendix F** and forwarded to the HSO.

All close call incidents must also be reported to the HSO, including a description of the incident, what harm was averted and the circumstances surrounding the potential incident. An example of this form is also in **Appendix F**.

2.1 SCOPE OF WORK AND POTENTIAL HAZARDS

2.2 Work Activities

Site personnel and subcontractors will perform the following activities at this site:

- Site mobilization
- Gas collection well installation and completion
- · Leachate collection well installation and completion
- Benching
- Header pipeline installation
- Wellhead installation

- Temporary cap installation
- Landfill gas (LFG) system operation and maintenance
- Flare installation
- Site demobilization
- Leachate management

If the scope of work is altered or if additional tasks are assigned, an addendum to this HASP shall be developed to address the specific hazards associated with these changes.

2.3 Potential Hazards

This section identifies and evaluates the potential chemical, physical, and biological hazards, which may be encountered during the activities described in the scope of work. To prevent these potential hazards from affecting worker performance, the HASP incorporates various levels of protection to be followed. However, it is recognized that the guidelines to be followed cannot replace worker common sense and experience.

Chemical Hazards

The potential chemical hazards of concern include components of landfill gas and leachate. These contaminants may include methane, hydrogen sulfide, ammonia, benzene, and other organic vapors. The routes of exposure from these contaminants are primarily through inhalation of organic vapors and dusts, and by direct contact with contaminated media.

Methane

Methane is usually a component of landfill gas. Pure methane is a colorless and odorless gas. It has practically no toxic effects below the flammable limits. While methane has no noticeable toxic effects, high concentrations can displace oxygen and serve as a simple asphyxiate. Methane has a lower explosive limit (LEL) of 5 percent and an upper explosive limit (UEL) of 15 percent by volume in air.

OSHA does not regulate exposure to methane by a specific standard. However, methane is a flammable gas and must be controlled at least 20 percent below its LEL; below 10 percent of the LEL in excavations and confined spaces.

Carbon Monoxide (CO)

Carbon monoxide is a colorless, odorless, non-irritating gas generally produced as a by-product of incomplete combustion of carbonaceous materials. The toxicity of carbon monoxide results from the way it interferes with the body's ability to transport oxygen. Therefore, in carbon monoxide poisoning, red blood cells are less able to pick up oxygen for transport from the lungs to the rest of the body, and are also less able to release whatever oxygen they do pick up. The first symptoms include headache, fatigue, and lightheadedness. At higher levels, skin flushing, rapid heart rate, and lowered blood pressure occur. Carbon monoxide poisoning is treated by administering oxygen to the patient.

The OSHA recommended exposure limit (REL) for carbon monoxide is 50 parts per million (ppm) as an 8-hour time weighted average (TWA), with a ceiling limit of 200 ppm, which should not be exceeded at any time during the workday.

Hydrogen Sulfide (H₂S)

Hydrogen sulfide is a colorless, toxic gas that is identified by the offensive odor of rotten eggs. It is heavier than air, flammable, and is generally a component of landfill gas. Hydrogen sulfide can cause irritation of eyes, nose and throat, beginning at approximately 10 ppm. Long-term exposure (30 minutes or longer) to high concentrations can cause drowsiness, staggering and nausea, which can lead to death due to respiratory system failure.

The odor of hydrogen sulfide can be detected at approximately 0.03 ppm, becomes offensive at 3 ppm, and causes irritation at 10 ppm. An especially dangerous situation is brief exposure to concentrations of 50 ppm, which can cause a person to lose the sense of smell. This has been described in accident reports as "I first smelled hydrogen sulfide, then it went away." This is called olfactory fatigue. The toxic effect of hydrogen sulfide paralyzes the respiratory control center, which leads to suffocation and then death.

Hydrogen sulfide has a wide flammable range (LEL 4.0%, UEL 44.0%). This property, coupled with its heavier-than-air density, makes it a hazard in trenches and low-lying areas.

Hydrogen sulfide is regulated by OSHA on a 20 ppm ceiling concentration. A ceiling concentration means that this level cannot be exceeded during any part of the work period. OSHA has also established a Permissible Exposure Limit (PEL) concentration at 10 ppm, and an Immediately Dangerous to Life or Health (IDLH) concentration of 100 ppm.

Employees are directed to shut down ignition sources and leave the area if hydrogen sulfide is detected above 10 ppm. Generally, natural cross-ventilation will reduce hydrogen sulfide to acceptable levels. Re-entry and continuation of work may be done only under controlled conditions involving monitoring equipment and in supplied air respirators if levels exceed, or are likely to exceed, 10 ppm.

Ammonia

Ammonia is a compound of nitrogen and hydrogen with the formula NH_3 . It is a colorless gas with a characteristic pungent smell. Ammonia can be a potential skin, eye, and throat irritant. OSHA has also established a PEL concentration at 50 ppm, and an IDLH concentration of 300 ppm. Ammonia is flammable. Its LEL is 15 percent and its UEL is 28 percent. However, ammonia is unlikely to collect at a concentration high enough to pose an explosion hazard.

Benzene

Benzene is a colorless and highly flammable liquid with a sweet smell. Benzene is commonly used in industrial processing and can be present at waste facilities. The primary route of exposure to benzene is through inhalation. Benzene over-exposure can cause damage to the liver, kidneys, lungs, heart and the brain, and can cause DNA strand breaks and chromosomal damage. Benzene causes cancer in both animals and humans. OSHA has established a PEL concentration at 1 ppm and an IDLH concentration of 500 ppm. Its LEL is 1.2 percent and it has a UEL of 7.8 percent. It is not anticipated that benzene alone is likely to collect at concentrations high enough to pose explosion or ignition hazards.

Leachate

As refuse decomposes, a liquid material forms that can combine the chemical properties of all materials involved. The resulting fluid, referred to as leachate, could have a wide range of hazardous properties. The leachate has failed hazardous waste analysis for benzene, which is a toxic characteristic. In addition, the leachate can reach temperatures exceeding 200°F.

Workers shall avoid direct contact with the leachate. In situations where contact is possible, workers shall wear modified Level D protective clothing, as described in the PPE section.

Asbestos

If suspected asbestos-containing material (ACM) is encountered when drilling a landfill gas or leachate well, the following "Asbestos Safety Protocol" will be implemented.

- Immediately identify and mark an exclusion zone with caution tape. The exclusion zone shall consist of a minimum twenty-five foot square (25'x25') with the landfill gas well located at the center.
- All personnel entering or working in the exclusion zone shall wear Tyvek suits for dust exposure and half-face respirators with appropriate asbestos filters.
- A ½-inch stream of water will be added to the borehole continuously during the drilling process.
- Plastic sheeting shall be placed on the ground near the borehole for the drilling debris to be placed on when emptying the drilling bucket. A sand or dirt berm approximately 18 inches high shall be placed on three sides of the plastic. Drilling debris placed on the plastic will be maintained wet. No overnight temporary storage of the drilled debris will be allowed.
- All used PPE and excavated or drilled material will be disposed of daily onsite in accordance with site procedures.
- All equipment owned or rented shall be pressure washed before leaving the site at a designated decontamination area.

Physical Hazards

Physical hazards that may be present during project work include the potential for close proximity to heavy equipment, working in trenches and excavations, noise, overhead and underground utilities, slip/trip/hit/fall injuries, heat stress/cold stress and other potential adverse weather conditions, existing LFG piping may contain abnormally hot landfill gases, steam, or hot leachate and may be pressurized. The abnormally hot gases/steam/leachate/pressure may also be encountered when penetrating existing soil cover material or flexible membrane liner. In addition, personnel must be aware that the protective equipment worn may limit dexterity and visibility and may increase the difficulty of performing some tasks.

Utility Clearances

 All work activities shall maintain the following distance limitations when near overhead electrical lines.

50,000 volts or less	10 feet away
50,000 volts to 200,000 volts	15 feet away
200,000 volts to 350,000 volts	20 feet away
350,000 volts to 500,000 volts	25 feet away
500,000 volts to 750,000 volts	35 feet away
750,000 volts to 1,000,000 volts	45 feet away

- Prior to all intrusive activities (e.g., excavating), locator line services will be contacted by the party performing the intrusive activities, as required by Missouri One-Call requirements, to mark underground lines.
- Personnel involved in intrusive work shall determine the minimum distance from marked utilities that work can be conducted with the assistance of the local agency.

Heavy Equipment

Working around heavy equipment can be dangerous because of the size and power of the equipment, the limited operatory field of vision, and the noise levels that can be produced by the equipment. Heavy equipment to be utilized at the site shall include a variety of backhoes, dozers, track loaders, and off-road trucks.

The following practices shall be followed by operators when using heavy equipment:

- Equipment should be inspected daily by the operator to ensure that the equipment is in safe operating condition.
- When not in use, hydraulic and pneumatic components should be left in down or "dead" position.
- Rollover protection shall be provided on uneven terrain sites.
- No riding on vehicles or equipment except in fixed seats.
- Seat belts should be worn at all times.
- Backup alarms, automatically activated and loud enough to be heard above background noise, are required to be operational on all heavy equipment.
- Parking brakes should always be applied on parked equipment.
- Equipment should never be operated closer than 10 feet from utility lines.
- Windshields must be maintained, clean, and free of visual obstructions.
- Wheel chocks must be used for all all-terrain vehicles (ATVs).
- When driving any vehicle, avoid distractions. No cell phone use is permitted while operating a vehicle.

To ensure the safety of all personnel in the work area, the following safety procedures regarding heavy equipment must be reviewed prior to and followed during work activities:

- Ensure that equipment operators are trained and/or experienced in the operation of the specific equipment.
- Personnel should never approach a piece of heavy equipment without the operator's acknowledgment and stoppage of work or yielding to the employee.
- Never walk under the load of a bucket or stand beside an opening truck bed.
- Maintain visual contact with the operator when in close proximity to the heavy equipment.

- Wear hearing protection while on or around heavy equipment when normal conversation cannot be heard above work operations.
- Steel-toed shoes, safety glasses, and a hard hat shall be worn for all work conducted near heavy equipment.

Excavation and Trenching

The following safety guidelines shall be adhered to while conducting excavation and trenching operations:

- Prior to opening an excavation, the excavating employee or contractor shall determine whether underground installation (i.e., sewer, telephone, water, fuel electric lines, etc.) will be encountered and the estimated location. When the excavation approaches the estimated location of such installation, the exact location shall be determined and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work at least three days prior to the start of actual excavation, per Missouri One-Call requirements. An exception may be made if the location was previously cleared by Missouri One-Call, at which point the utility company will be notified and will have the option to observe the work at their discretion.
- Ladders will be used in any trench greater than 4 feet in depth, and must be available with every 25 feet of lateral travel. The ladders must extend above the trench at least 3 feet.
- Protective systems (i.e., shoring/bracing, sloping, or benching) shall be used if personnel are to enter an excavation with a depth greater than 5 feet.
- Sloping or benching shall be in accordance with the OSHA standard and shall correspond to the proper ratio (i.e., 1½:1) as per soil type.
- Air monitoring for potential hazardous atmospheres (i.e., combustible gases, volatile
 organics, and oxygen deficient environments) shall be conducted prior to and during
 personnel entering the trench with a depth at 4 feet or greater.
- Barriers shall be erected around excavations in remote work locations. Backfill all excavations, temporary wells, pits, and shafts when work is completed.
- Vehicular traffic and heavy equipment shall remain at least 4 feet from the face of the excavation. All excavated or other materials shall be stored and retained at least 2 feet from excavation.
- The excavation shall be inspected by the selected competent person throughout the workday during any change in conditions (i.e., rain, cracking/fissures) and at a minimum twice daily.

Heavy Lifting

When lifting objects, use the following proper lifting techniques:

- Keep your feet shoulder width apart to get the best footing possible.
- Bend at the knees, not at the waist.
- Tighten stomach muscles to offset the force of the load.

- · Grasp the object at opposite corners.
- Lift with the legs instead of the back muscles.
- Keep the back upright and avoid twisting.
- Most importantly, think before lifting.

Slip/Trip/Hit/Fall

Slip, trip, hit, and fall injuries are the most frequent of all injuries to workers. They occur for a wide variety of reasons, but can be minimized by the following prudent practices:

- Spot check the work area to identify hazards.
- Establish and utilize a pathway that is most free of slip and trip hazards.
- Beware of trip hazards such as wet floors, slippery floors, and uneven surfaces or terrain.
- · Carry only loads that you can see over.
- Keep work areas clean and free of clutter, especially in storage rooms and walkways.
- · Communicate hazards to onsite personnel.
- Secure all loose clothing, ties, and remove jewelry while around machinery.
- Report and/or remove hazards.
- Keep safe buffer zones between workers using equipment and tools.

Electrical Hazards

No individual shall be permitted to work on any part of an electrical power circuit unless the person is protected against electric shock by de-energizing the circuit and grounding it, or by locking and tagging out:

- All electrical wiring and equipment shall be intrinsically safe for use in potentially explosive environments and atmospheres.
- All electrical wiring and equipment shall be a type listed by Underwriters' Laboratories (UL) or Factory Mutual (FM) for the specific application.
- All installations shall comply with the National Electric Code (NEC) and the National Electric Safety Code (NESC).
- All electrical circuits shall be grounded according to the NEC and NESC. Ground
 fault circuit interrupters shall be used in the absence of properly grounded circuitry
 or when portable tools must be used around wet areas.
- All live wiring or equipment shall be guarded to protect all persons or objects from harm.

Isolation and Lockout/Tagout Safeguards

All energy sources that are potentially hazardous to confined space entrants must be secured, relieved, disconnected and/or restrained before personnel are permitted to enter the confined space. Equipment systems or processes must be locked out or tagged out or both per 29 CFR and ANSI Z244.1-1982, Lockout/Tagout of Energy Sources, prior to permitting entry into the confined space. The current lockout/tagout program being used at the site must be used as guidance. In confined spaces where complete isolation is not possible, provisions must be made for as rigorous an isolation as practical. Special precautions must be taken when entering double walled, jacketed, or internally insulated confined spaces that may discharge hazardous material through the vessel's internal wall.

Adverse Weather Conditions

The HSO shall decide on the continuation or discontinuation of work based on current and pending weather conditions. Electrical storms, tornado warnings, and strong winds are examples of conditions that would call for the discontinuation of work and evacuation of site.

- No work will be permitted during any type of electrical storm. When lightning is
 observed, site management staff will be notified and work shall cease for a period of
 30 minutes from the last observed lightning strike.
- In the event of strong precipitation events (greater than 0.30 inch of rain per hour) or any icing event, traversal of the EVOH cap shall be strictly limited and will require notification of a supervisor and employment of the "buddy" system.
- Elevated work activities performed via a man lift or man basket are prohibited during high wind events (greater than 30 miles per hour wind speeds).

Heat Stress

Recognition and Symptoms

Temperature stress is one of the most common illnesses at hazardous waste sites. Acclimatization and frequent rest periods must be established for conducting activities where temperature stress may occur. Below are listed signs and symptoms of heat stress. Personnel should follow appropriate guidelines if any individual exhibits these symptoms:

Heat Rash — Redness of skin. Frequent rest and change of clothing.

Heat Cramps — Painful muscle spasms in hands, feet, and/or abdomen. Administer lightly salted water by mouth, unless there are medical restrictions.

Heat Exhaustion — Clammy, moist, pale skin, along with dizziness, nausea, rapid pulse, fainting. Move to cooler area and administer fluids.

Heat Stroke — Hot dry skin, red, spotted or bluish; high body temperature of 104°F; mental confusion; loss of consciousness, convulsions or coma. Immediately cool victim by immersion in cool water. Wrap with wet sheet while fanning, sponge with cool liquid while fanning; treat for shock. DO NOT DELAY TREATMENT. COOL BODY WHILE AWAITING AMBULANCE.

Work Practices

The following procedures will be carried out to reduce heat stress:

- Acclimatization
- · Work/rest regimes
- Liquids that replace electrolytes/salty foods available during rest
- Use of buddy system

Acclimatization

The level of heat stress at which excessive heat strain will result depends on the heat tolerance capabilities of the worker. Each worker has an upper limit for heat stress beyond which the resulting heat strain can cause the worker to become a heat casualty. In most workers, appropriate repeated exposure to elevated heat stress causes a series of physiologic adaptations called acclimatization, whereby the body becomes more efficient in coping with heat stress. A work/rest regime will be partially determined by the degree of acclimatization provided.

Cold Stress

Recognition and Symptoms

Ambient air temperatures during site activities may create cold stress for onsite workers. Procedures for recognizing and avoiding cold stress must be followed. Cold stress can range from frostbite to hypothermia. Below are listed the signs and symptoms of cold stress. Personnel should follow the appropriate guidelines if any personnel exhibit these symptoms:

Frostbite — Pain in the extremities and loss of manual dexterity. "Frostnip" or reddening of the tissue, accompanied by a tingling or loss of sensation in the extremities. Continuous shivering.

Hypothermia — Pain in the extremities and loss of manual dexterity. Severe, uncontrollable shivering. Inability to maintain level of activity. Excessive fatigue, drowsiness, irritability, or euphoria. **Severe hypothermia:** clouded consciousness, low blood pressure, pupil dilation, cease of shivering, unconsciousness, and possible death.

Move the patient to a warm, dry place. If clothing is wet, remove and replace with dry clothing. Keep patient warm. Re-warming of patient should be gradual to avoid stroke symptoms. Dehydration of the loss of body fluids may result in cold injury due to a significant change in blood flow to the extremities. If patient is conscious and alert, warm sweet liquids should be provided. Coffee and other caffeinated liquids should be avoided because of diuretic and circulatory effects. Extremities affected by frostbite should be gradually warmed up and returned to normal temperature. Moist compresses should be applied; begin with lukewarm compresses and slowly increase the temperature as changes in skin temperature are detected. Keep patient warm and calm, transport to a medical facility as soon as possible.

Work Practices

The reduction of adverse health effects from cold exposure is achieved by adopting the following work practices:

- Providing adequate insulated dry clothing to maintain core temperature above 98.6°F to workers if work is performed in air temperature below 40°F. Wind chill cooling rates and the cooling power of air are critical factors. The higher the wind speed and the lower the temperature in the work area, the greater the insulation value of the protective clothing required.
- If the air temperature is 32°F or less, hands should be protected.
- If only light work is involved and if the clothing on the worker may become wet on the job site, the outer layer of the clothing in use should be impermeable to water. With more severe work under such conditions, the outer layer should be water repellent and changed as it becomes wet. The outer garments should include provisions for easy ventilation in order to prevent wetting of inner layer by sweat.
- If available clothing does not give adequate protection to prevent cold injury, work should be modified or suspended until adequate clothing is made available, or until weather conditions improve.
- Heated warming shelters should be available nearby (e.g., use of onsite trailer).
 Workers should be encouraged to use these at regular intervals, the frequency depending on the severity of the environmental exposure. When entering the heated shelter, the outer layer of clothing should be removed and the remainder of the clothing loosened to permit heat evaporation or a change of dry work clothing provided.
- Warm sweet drinks and soups shall provide the correct caloric intake and fluid volume. Intake of caffeinated coffee should be limited due to the diuretic and circulatory effect.
- The weight and bulk of clothing should be included in estimating the required work performance and weights to be lifted by the worker.
- Implementing a buddy system in which workers are responsible for observing fellow workers for early signs and symptoms of cold stress.
- Unacclimatized employees should not be required to work full-time in cold until they become accustomed to the working conditions and required protective clothing.

Tinted eye protection for all workers will be provided when a glare potential (snow or ice) is present. Air temperature and wind speed monitoring and recording are required every four hours when the temperature falls below 30°F.

High Temperature Landfill Gases and High Temperature Leachate

Excessively hot landfill gases and leachate exceeding 200° F will be encountered in most parts of the existing landfill gas well and pipeline system. The gases and leachate may be under pressure, and extreme caution should be used when making repairs to avoid hot discharges. The piping to be repaired should be isolated by valving or a pipe pincher before work proceeds. Prior to opening or otherwise penetrating any existing sealed component, a test port should be drilled and or probed by other access points. High temperature splash protection PPE shall be used any time conditions cannot be identified or resolved prior to making penetrations.

Biological Hazards

Tick-Borne Diseases

Lyme disease is caused by a bacterial parasite called spirochete, and is spread by infected ticks that live in and near wooded areas, tall grass, and brush. Once the tick deposits the spirochete, it must feed on the host blood for 12 to 24 hours before it can transmit the disease. The ticks that cause the disease in the Northeast and Midwest are often no bigger than a poppy seed or a comma in newsprint. The peak months for human infection are June through October. There are many other tick borne diseases such as Rocky Mountain Spotted Fever that can be carried by a variety of ticks. The prevention and treatment of these diseases are similar to those of Lyme disease.

Prevention

Ticks hang on blades of grass or shrubs waiting for a host to come by. When a host brushes against the vegetation, the tick grabs on. They typically climb onto an individual's legs and then crawl up looking to attach in a body crevice. Preventative measures include wearing light-colored clothing, keeping clothing buttoned, tucking pant legs into socks, pulling socks up past the knee, pulling the pant waist up above the naval area with a tight belt, and keeping shirttails tucked in. Periodic checks for ticks should be made during the day, and especially at night. Hair should also be checked by parting it and combing through it to make sure that no ticks have attached to the scalp. Also, check clothing when it is first removed, before ticks have a chance to crawl off. It is common for ticks to be carried home on clothing and attach to others in the household.

The most common repellent recommended for ticks is N,N-dimethyl-m-toluamide, or DEET. It is important to follow the manufacturer's instructions found on the container for use with all insecticides especially those containing DEET.

In general, DEET insect repellent should only be applied to clothing, not directly on the skin. Do not apply to sunburns, cuts or abrasions. Use soap and water to remove DEET once indoors.

Removal

The best way to remove a tick is removal by tweezers. If tweezers are not available, cover your fingers (tissue paper) while grasping the tick. It is important to grasp the tick as close as possible to the site of attachment and use a firm steady pull to remove it. When removing the tick, be certain to remove all the mouth parts from your skin so as not to cause irritation or infection. Wash hands immediately after with soap and water, and apply antiseptic to the area where the tick was removed.

Testing and Symptoms of Lyme Disease

A variety of tests exist for determining Lyme Disease infection. However, most of these tests are not exact. The first symptoms of Lyme Disease usually appear from two days to a few weeks after a person is bitten by an infected tick. Symptoms usually consist of a ring-like red rash on the skin where the tick attached. The rash is often bull's eye-like with red on the outside and clear in the center. The rash may be warm, itchy, tender, and/or "doughy". Unfortunately, this rash appears in only 60 to 80 percent of infected persons. An infected person also has flu-like symptoms of fever, fatigue, chills, headaches, a stiff neck, and muscle aches and pains (especially knees). Rashes may be found some distance away from the site of actual attachment. These symptoms often disappear after a few weeks.

Poisonous Plants

Common poison ivy (Rhus radicans) grows as a small plant, a vine, and a shrub. Poison ivy occurs in every state. The leaves always consist of three glossy leaflets. Poison sumac (Rhus vernix) grows as a woody shrub or small tree 5 to 25 feet tall. It usually contains nine leaves, with eight paired leaves and one on top, and is common in swampy areas. The plants are potent sensitizers and can cause a mild to severe allergic reaction. This reaction is called contact dermatitis.

Dermatitis, in Rhus-sensitive persons, can result from contact with the milky sap found in the roots, stems, leaves, and fruit. The sap may retain its potency for months or years in a dry atmosphere and can occur during any time of the year. The sap may also be carried by animals, equipment or apparel.

The best form of prevention is to avoid contact. This can occur by wearing long sleeves and gloves if necessary. Disposable clothing, such as Tyvek, is recommended in high-risk areas to avoid exposure from contaminated apparel. Barrier creams and cleaners are also recommended.

Blood Poisoning

Blood poisoning is a term used to indicate a large number of bacteria present in the circulating blood. The most common symptom of blood poisoning is the reddening of the skin, which advances towards the heart. For example, if the point of contact is the hand then a red line will appear at the hand and extend up the arm.

PPE shall be worn to prevent direct contact with media, which may be contaminated with bacteria or viral agents.

Signs and symptoms include swelling, stiffness, and tenderness in the affected area; fatigue, chills and fever; pustules and abscesses. If allowed to progress, the organisms may multiply and cause an overwhelming infection and death.

2.4 Assessment and Mitigation of Potential Hazards

Personal Protective Equipment (PPE)

All personnel involved with this work effort shall wear PPE equivalent to the Level D protocol described below. The HSO is qualified to modify this protocol in accordance with the hazards of the specific activities being performed at the time. Where there is increased potential for contact with liquids, the protocol shall be upgraded to the Modified Level D protocol described below.

Extensive use of respiratory protective equipment is not contemplated by this HASP. However, should field monitoring determine that respiratory equipment is required, the affected area will be evacuated until a proper respiratory protective equipment procedure can be implemented. The evaluation and use of respiratory protective equipment will be implemented as outlined in **Appendix G**.

PPE Designation	Mandatory Items	Worn at Direction of HSO
Level D	 Hard hat Work uniform Safety glasses Steel-toed boots Traffic vest 	Hearing protection
Modified Level D	 Hard hat Work uniform Safety glasses Steel-toed boots Resistant coveralls Rubber gloves Rubber boots 	Hearing protection Traffic vest

Protocol for Visitors

Visitors shall be required to wear PPE equivalent to the Level D protocol described above. The HSO is responsible for making changes to the visitor PPE protocol if revisions are deemed necessary.

Exposure Monitoring

Air monitoring shall be performed during project activities that present the greatest potential for exposure to airborne contaminants such as landfill gas, leachate and oxygen deficiency. The data collected throughout the monitoring effort shall be continually evaluated to ensure the worker protection protocols required by this HASP remain effective.

All air monitoring conducted during this work effort shall be documented on the Direct Reading Instrument Data Form contained in **Appendix D**, and subsequently filed with the project records. **Appendix D** information may also be substituted for a meter data download if properly documented.

Oxygen, Combustible Gas Levels, Carbon Monoxide (CO), and Hydrogen Sulfide

The standard air monitoring protocol for this work effort shall consist of air monitoring for oxygen content, combustible gas levels, carbon monoxide, and hydrogen sulfide concentration. Combustible gas levels will be calibrated to monitor for methane (CH4) concentrations. The equipment to be used shall consist of an operational, calibrated oxygen/combustible gas/CO/hydrogen sulfide (O₂/LEL/CO/H₂S) 4-gas meter.

O2/LEL/CO/H2S METER

The $O_2/LEL/CO/H_2S$ meter has the ability to determine the level of explosive vapors, oxygen deficient environments, and CO and H_2S concentrations. The combustible gas indicator has a range from 0 to 100 percent of the LEL. The oxygen sensor range is from 0 to 40 percent, the carbon monoxide sensor range is 0 ppm to 500 ppm, and the H_2S range is from 0 ppm to 100 ppm. In addition to the personal monitors, the contractors and subcontractors shall maintain the following instruments for air monitoring capability.

- Explosive Gases Meter
- Carbon Monoxide Detector
- Hydrogen Sulfide Meter
- Ammonia Meter
- Photo Ionization Detector (PID)

Monitoring Frequency

Air monitoring shall be conducted continuously during all activities when there is potential exposure to oxygen deficiency, explosive vapors, methane, hydrogen sulfide, carbon monoxide, ammonia, benzene, or other volatile organic compounds (VOCs). Situations that may present a potential exposure to oxygen deficiency include trenching, excavation, confined spaces, areas with ambient airflow restrictions, open well maintenance or repairs, or any other activity as decided by the HSO or subcontractor. Levels will be logged hourly during continuous monitoring.

Health and Safety Action Levels

An action level is a point at which increased protection or cessation of activities is required due to the concentration of contaminants in the work area. The action levels for this project are established in the following table.

Work will continue if the LEL is less than 10 percent and the H_2S reading is less than 10 ppm. A work stoppage and evacuation (cease and desist) at the specific work area is required if concentrations of LEL concentrations exceed 10 percent or H_2S concentrations exceed 10 ppm.

Monitoring Device	Action Level	Action to be Taken
O2/LEL/CO/H2S Meter	< 19.5% O2	Evacuate area and/or ventilate.
	> 10% LEL	Evacuate area and/or ventilate.
	> 40 ppm CO	Evacuate area and/or ventilate.
	> 10 ppm H2S	Evacuate area and/or ventilate.

Prior to implementing the use of supplied air, contractor and subcontractor supervisors shall evaluate and implement industry standard engineering controls, if practical, to the work area that will lower concentrations below the action level. If engineering controls are not applicable/practical for the situation, supplied air may be used. Entry into any excavated area without supplied air will not be permitted if any of the following concentrations are detected and evaluated in accordance with the procedures listed below:

- Methane gas levels are detected at 25 percent of the LEL for methane gas or higher.
- Hydrogen sulfide gas levels are detected at 10 ppm or higher in worker breathing zone.

- Oxygen levels are detected at 19.5 percent oxygen gas by volume or lower in worker breathing zone.
- Carbon monoxide levels are detected at 25 ppm or higher in worker breathing zone.
- Ammonia levels are detected at 25 ppm or higher in worker breathing zone.
- VOC (including benzene) concentrations are higher than 1 ppm (or >10 ppm if benzene is not present) in worker breathing zone.

If the task requires the use of supplied air, each worker performing the task shall remain on supplied air until the completion of that task, or until the end of the working day if that task is to be carried out over a multiple day period. The contractor shall develop a task-specific safety plan for use of supplied air that describes the timeframes for working, including number and duration of breaks for each worker. The plan shall take into account factors that affect stress such as ambient temperature, level of PPE, the physical demands of the work, the nature of the pollutants to which the worker would otherwise be exposed, etc.

Confined Spaces

A confined space is defined as any location that has limited openings for entry and egress, is not intended for continuous employee occupancy, and is so enclosed that natural ventilation may not reduce air contaminants to levels below the PEL. Examples of confined spaces include manholes, stacks, pipes, storage tanks, trailers, tank cars, pits, sumps, hoppers, and bins. Entry into confined spaces without the proper precautions could result in injury and/or impairment or death due to:

- · An atmosphere that is flammable or explosive.
- Lack of sufficient oxygen to support life.
- · Contact with or inhalation of toxic materials.
- General safety or work area hazards such as steam or high pressure materials.

In the event that a confined space entry is warranted, a confined space entry team will be assembled. The team will be composed of a supervisor, entrant(s), attendant, and a rescue team. The following describes the duties of the personnel involved and each officer's respective responsibilities in the event that a confined space entry is warranted.

Confined Space Supervisor

The confined space entry team must have a Confined Space Supervisor. The Confined Space Supervisor must have current Confined Spaces Training and is responsible for implementing the confined space program and must:

- Ensure that a list of confined spaces is maintained.
- Ensure that cancelled permits are reviewed for lessons learned.
- Ensure training of personnel is conducted.
- Ensure coordination with outside responders.
- Ensure equipment is in compliance with standards.
- Maintain a master inventory of identified confined spaces.

- · Determine if conditions are acceptable for entry.
- Authorize entry and oversee entry operations.
- Terminate entry procedures as required.
- Serve as an attendant, as long as the person is trained and equipped appropriately for that role.

Employees and Contractors Entering Confined Space (Entrants)

Contractors involved in confined space entry must:

- · Have current Confined Spaces Training.
- Submit a confined space entry permit for each day that entry is planned.
- Read and observe the entry permit requirements.
- Stay alert to the hazards that could be encountered in a confined space.
- Use the protective equipment required by the permit.
- Immediately exit the confined space when:
 - o Ordered to do so by the Attendant.
 - o Automatic alarms sound.
 - o They perceive they are in danger.
 - o They notice physiological stresses or changes in themselves or co-workers (e.g., dizziness, blurred vision, shortness of breath).

Attendant

Entrants must be accompanied by an attendant. The attendant must have current Confined Spaces Training, must be stationed at the entrance to the workspace and must:

- Be knowledgeable of, and be able to recognize, potential confined space hazards.
- Maintain a sign-in/sign-out log with a count of all persons in the confined space and ensure all entrants sign in/sign-out.
- Monitor surrounding activities to ensure the safety of personnel.
- Maintain effective and continuous communication with personnel during confined space entry, work and exit.
- Order personnel to evacuate the confined space if he/she:
 - o Observes a condition that is not allowed on the entry permit.
 - Notices the entrants acting strangely, possibly as a result of exposure to hazardous substances.
 - o Notices a situation outside the confined space that could endanger personnel.
 - o Notices within the confined space a hazard, which has not been previously recognized or taken into consideration.

- Must leave his/her workstation.
- Must focus attention on the rescue of personnel in some other confined space that he/she is monitoring.
- Immediately summon the rescue team if crew rescue becomes necessary.
- Keep unauthorized persons out of the confined space, order them out, or notify authorized personnel of the unauthorized entry.

Rescue Team

A rescue team must be available immediately in the event of an emergency. The rescue team members must have current Confined Spaces Training and must:

- Respond immediately to rescue calls from the attendant or any other person recognizing a need for rescue from the confined space.
- In addition to emergency response training, receive the same training as that required of the authorized entrants.

Identification and Evaluation

The Confined Space Supervisor must ensure a survey is conducted of the work site to identify confined spaces. This survey can be partially completed from initial and continuing site characterizations, as well as other available data (e.g., blueprints, job safety analysis). The purpose of the survey is to develop an inventory of locations and/or equipment that meet the definition of a confined space. This information must be communicated to personnel and appropriate procedures developed prior to entry. The initial surveys must include air monitoring to determine the air quality in the confined spaces. The following situations must be evaluated by competent personnel:

- Flammable or explosive potential.
- Oxygen deficiency.
- · Presence of toxic and corrosive material.

Hazard Re-Evaluation

The Project Manager must ensure the identification and re-evaluation of the hazards based on possible changes in activities, and/or other physical or environmental conditions, which could adversely affect work. A master inventory of confined spaces must be maintained. Any change in designation of a confined space will be routed through the HSO for review, prior to the change being made.

Hazard Assessment

A hazard assessment must be completed prior to any entry into a confined space. The hazard assessment must identify the sequence of work to be performed in the confined space, the specific hazards known or anticipated, and the control measures to be implemented to eliminate or reduce each of the hazards to an acceptable level. No entry must be permitted until the hazard assessment has been reviewed and discussed by all persons engaged in the activity. Personnel who enter confined spaces must be informed of known or potential hazards associated with the confined spaces to be entered.

Hazard Controls

Hazard controls include changes in the work processes and/or working environment with the objective of:

- Controlling the health hazards by eliminating the responsible agents.
- · Reducing health hazards below harmful levels.
- Preventing the contaminants from coming into contact with the workers.

The following order of precedence must be followed in reducing confined space risks:

- Engineering controls, such as ventilation to limit exposure to hazards.
- Work practice controls, such as wetting of hazardous dusts and subsequent cleaning.
- Use of PPE, such as air purifying or supplied-air respirators.

Engineering Controls

Engineering controls are those controls that eliminate or reduce the hazard through implementation of sound engineering practices.

Ventilation is one of the most common engineering controls used in confined spaces. When ventilation is used to remove atmospheric contaminants from the confined space, the space must be ventilated until the atmosphere is within the acceptable ranges. Ventilation must be maintained during the occupancy if there is a potential for the atmospheric conditions to move out of the acceptable range. When ventilation is not possible or feasible, alternate protective measures or methods to remove air contaminants and protect occupants must be determined by the qualified person prior to authorizing entry. Conditions regarding continuous exhaust ventilation must be used as follows:

- Employees must not enter the space until the exhaust ventilation has eliminated any hazardous atmosphere.
- Exhaust ventilation must be so directed as to ventilate the immediate areas where an employee is or will be present within the space.
- Continuous exhaust ventilation is maintained until all employees have left the space.
- Exhaust from the ventilation must be to an area that will not affect other workers.

Work Practice (Administrative) Controls

Work practice (administrative) controls are those controls that eliminate or reduce the hazard through changes in the work practice (e.g., rotating workers, reducing the amount of worker exposure, housekeeping). Confined spaces must be cleaned/decontaminated of hazardous materials to the extent feasible before entry. Cleaning/decontamination must be the preferred method of reducing exposure to hazardous materials. Where this is not practicable, PPE must be worn by the entry personnel to provide appropriate protection against the hazards that may be present.

Personal Protective Equipment (PPE)

If the hazard cannot be eliminated or reduced to a safe level through engineering and/or work practice controls, PPE must be used. A qualified person per 29 CFR 1926.32(m) must determine PPE needed by all personnel entering the confined space, including rescue teams.

PPE that meets the specifications of applicable standards must be selected in accordance with the requirements of the job to be performed.

Entry Procedures

Whenever entry into a confined space is needed, a qualified inspector must complete a confined space entry permit. Entry into a confined space must follow the standard entry procedure.

The following are requirements for standard entry:

- Training to establish personnel proficiency in the duties required.
- Atmospheric testing for entry.
- · Atmospheric monitoring during the entry.

Before an employee enters the space, the internal atmosphere must be tested with a calibrated, 4-gas monitor. If a hazardous atmosphere is detected during entry:

- The space must be evaluated to determine how the hazardous atmosphere developed.
- Measures must be implemented to protect employees before any subsequent entry takes place.

Personnel must be prohibited from entering hazardous atmospheres without wearing proper respiratory equipment as determined by qualified entry supervisors. The entire confined space entry permit must be completed for a standard entry.

Opening a Confined Space

Any conditions making it unsafe to remove an entrance cover must be eliminated before the cover is removed. When entrance covers are removed, the opening must be promptly guarded by a railing, temporary cover, or other temporary barrier that will prevent anyone from falling through the opening. This barrier or cover must protect each employee working in the space from foreign objects entering the space. If it is in a traffic area, adequate barriers must be erected.

Atmospheric Testing

Atmospheric test data is needed prior to entry into any confined space. Atmospheric testing is required for two distinct purposes: evaluation of the hazards of the permit space and verification that acceptable conditions exist for entry into that space. If a person must go into the space to obtain the needed data, then Standard Confined Space Entry Procedures must be followed (i.e., rescue team, attendant, entry supervisor). Before entry into a confined space, a qualified person must conduct testing for hazardous atmospheres. The internal atmosphere must be tested with a calibrated, direct-reading instrument for the following, in the order given:

- · Oxygen content.
- Flammable gases and vapors.
- Potential toxic air contaminants.

Evaluation Testing

The atmosphere of a confined space must be analyzed using equipment of sufficient sensitivity and specificity. The analysis must identify and evaluate any hazardous atmospheres that may exist or arise so that appropriate permit entry procedures can be developed and acceptable entry conditions stipulated for that space. Evaluation and interpretation of these data and development of the entry procedure must be done by, or reviewed by, a technically qualified professional (e.g., OSHA consultation service, certified industrial hygienist, registered safety engineer, certified safety professional).

Acceptable Limits

The atmosphere of the confined spaces must be considered within acceptable limits whenever the following conditions are maintained:

- Oxygen-19.5 percent to 23.5 percent.
- Flammability less than 10 percent of the LEL.
- Toxicity less than recognized exposure limits or other published exposure levels (e.g., OSHA PELs).

Whenever testing of the atmosphere indicates levels of oxygen, flammability, or toxicity that are not within acceptable limits, entry must be prohibited until appropriate controls are implemented. If the source of the contaminant cannot be determined, precautions must be adequate to deal with the worst possible condition in the confined space. If there is the possibility that the confined space atmosphere can become unacceptable while the work is in progress, the atmosphere must be constantly monitored and procedures and equipment must be provided to allow the employees to quickly and safely exit the confined space.

Isolation and Lockout/Tagout Safeguards

All energy sources that are potentially hazardous to confined space entrants must be secured, relieved, disconnected and/or restrained before personnel are permitted to enter the confined space. Equipment systems or processes must be locked out or tagged out or both per 29 CFR and ANSI Z244.1-1982, Lockout/Tagout of Energy Sources, prior to permitting entry into the confined space. The current lockout/tagout program being used at the site must be used as guidance. In confined spaces where complete isolation is not possible, provisions must be made for as rigorous an isolation as practical. Special precautions must be taken when entering double walled, jacketed, or internally insulated confined spaces that may discharge hazardous material through the vessel's internal wall.

Ingress/Egress Safeguards

Means for safe entry and exit must be provided for confined spaces. Each entry and exit point must be evaluated to determine the most effective methods and equipment to be utilized to enable employees to safely enter and exit the confined space.

Appropriate retrieval equipment or methods must be used whenever a person enters a confined space. Use of retrieval equipment may be waived by the designated qualified person(s) if use of the equipment increases the overall risks of entry or does not contribute to the rescue. A mechanical device must be available to retrieve personnel from vertical-type confined spaces greater than 5 feet in depth.

Warning Signs and Symbols

All confined spaces that could be inadvertently entered must have signs identifying them as confined spaces. Signs must be maintained in a legible condition. The signs must contain a warning that a permit is required before entry. Accesses to all confined spaces must be prominently marked.

Training for Confined Space Entry

The contractor's individual employer must provide training so that all employees who are involved in confined space work at the site acquire the understanding, knowledge, and skills necessary for the safe performance of their duties in confined spaces. Training must be provided to each affected employee:

- Before the employee is first assigned duties under this section.
- Before there is a change in assigned duties.
- Whenever there is a change in permit space operations that presents a hazard for which an employee has not been trained.
- Whenever the employer has reason to believe either that there are deviations from the permit space entry procedures required in this section or that there are inadequacies in the employee's knowledge or use of these procedures.

The training must establish employee proficiency in the duties required by this section and must introduce new or revised procedures, as necessary, for compliance with this section.

General Training

All employees who will enter confined spaces must be trained in entry procedures. Personnel responsible for supervising, planning, entering or participating in confined space entry and rescue must be adequately trained in their functional duties prior to any confined space entry. Training must include:

- Explanation of the general hazards associated with confined spaces.
- Discussion of specific confined space hazards associated with the facility, location or operation.
- Reason for, proper use of, and limitations of PPE and other safety equipment required for entry into confined spaces.
- Explanation of permits and other procedural requirements for conducting a confined space entry.
- · A clear understanding of what conditions would prohibit entry.
- How to respond to emergencies.
- Duties and responsibilities as a member of the confined space entry team.
- Description of how to recognize symptoms of overexposure to probable air contaminants in themselves and co-workers, and method(s) for alerting attendants.

Refresher training must be conducted as needed to maintain employee competence in entry procedures and precautions.

Retrieval Systems or Methods to Facilitate Non-Entry Rescue

Retrieval systems must be used whenever an authorized person enters a confined space, unless the equipment increases the overall risk of entry or the equipment would not contribute to the rescue of the entrant. Retrieval systems must have a chest or full body harness and a retrieval line attached at the center of the back near muster level or above the head. If harnesses are not feasible or create a greater hazard, wristlets may be used in lieu of the harness. The retrieval line must be firmly fastened outside the space so that rescue can begin as soon as anyone is aware that retrieval is necessary. A mechanical device must be available to retrieve personnel from vertical confined spaces more than 5 feet deep.

Decontamination

All site personnel shall follow the decontamination procedures outlined below.

Contamination Prevention

One of the most important aspects of decontamination is the prevention of the spread of contamination. Good contamination prevention will minimize employee exposure, and ensure good personal hygiene. Proper decontamination procedures and the following procedures of contamination avoidance shall reduce the potential exposure and the spread of contamination.

- · Do not walk through areas of obvious or known contamination.
- Do not handle or touch contaminated materials directly.
- Fasten all closures on suits, cover with tape if necessary.
- Take particular care to protect any skin injuries.
- Stay upwind of airborne contaminants when possible.

Personal Decontamination

All PPE in excess of Level D protocol will be disposed of and/or decontaminated at the conclusion of each workday as described below. Decontamination procedures will follow the concept of deconning the most contaminated PPE first.

All disposable equipment shall be doffed before meal breaks and at the conclusion of the workday and replaced with new equipment prior to commencing work. Non-disposable equipment will be fully decontaminated and then placed in a clean storage area.

Decontamination

Decontamination procedures are as follows:

- Step 1 Remove all visible contamination and loose debris (Level D and Modified Level D).
- Step 2 Remove all outer clothing that came in contact with the contamination (i.e., boot covers and outer gloves) and either dispose of in disposable container or wash in detergent solution and rinse (Modified Level D and above).
- Step 3 Remove protective clothing; dispose of in a disposable container (Modified Level D and above).

• Step 4 — Wash and rinse hands.

Equipment Decontamination

Heavy Equipment

All vehicles and heavy equipment used (e.g., trucks, backhoe, bulldozer) that encounter waste materials will be decontaminated prior to leaving the project site using procedures determined by the HSO.

When possible, vehicles should be parked offsite or in a non-contaminated area of the site to minimize contamination and thus, avoid the need to decontaminate.

3.1 MEDICAL EMERGENCY PROCEDURES

3.2 Medical Emergency Response Plan

Employees shall have walkie-talkies or CB radios onsite, or be within the immediate vicinity of a cellular phone, at all times. Workers will be familiar with the location of the nearest phone and medical facilities, all of which are described as part of the safety orientation. In the event of an emergency situation, employees shall follow the general procedures specified below. Specific emergency procedures are listed in this HASP and should be readily available on the site.

Should any person visiting or working at the site be injured or become ill, notify your supervisor and/or the HSO and initiate the following emergency response plan.

If able, the injured person should be escorted to the nearest available source of first aid. If the injured party is extremely muddy, remove outer garments and if necessary, wash the injured area with soap and water, either at a portable wash station nearby or at the dedicated facilities available at the Bridgeton Landfill main office. If the "injury" involves a potential overexposure to hazardous gases or vapors, (headache, dizziness, nausea, disorientation), get the victim to fresh air and take him or her to a doctor for a complete physical examination as soon as possible.

If the injury involves foreign material in the eyes, immediately flush the eyes with emergency eyewash solution and rinse with copious amounts of water at the nearest emergency eyewash station. Emergency eyewash solution is required in all vehicles on the site. Dedicated emergency eyewash stations are available at the MBI Maintenance Building, near the one-million-gallon tank farm, inside the water treatment facility, and the leachate load-out area EBG1. Obtain or administer first aid as required. If further medical treatment is required, seek medical assistance as discussed below.

If the victim is unable to move, IMMEDIATELY SEEK MEDICAL ASSISTANCE. Leave the victim in place unless absolutely necessary to save his or her life, and administer necessary first aid until emergency medical personnel arrive.

If the victim is unconscious, do not move the person unless absolutely necessary to save his or her life. Administer rescue breathing if the victim is not breathing and control bleeding until emergency medical personnel arrive.

Incident, Injury, and Illness Reporting and Investigation

Any work-related incident, injury, illness, exposure, vehicle incident, or property loss must be reported to the HSO. All incidents shall be documented on the form contained in **Appendix F** and forwarded to the HSO.

The report must be filed for the following circumstances:

- Incident, injury, illness, or exposure of an employee.
- Injury of a subcontractor.
- · Damage, loss or theft of property.
- Any incident, regardless of fault, which involves company equipment, a company vehicle, rental vehicle, or personal vehicle while the employee is acting in the course of employment.

All incidents will be investigated by the HSO, or designee. This investigation will focus on determining the cause of the incident and modifying future work activities to eliminate the hazard.

Emergency Equipment/First Aid

Basic first aid supplies (bandages, gauze, tape, etc.) will be located in the first aid box inside every onsite vehicle, along with a fire extinguisher. The first aid box along with first aid manuals will be located in the site trailer or site Superintendent's vehicle. Other onsite emergency equipment includes emergency eyewash, fire extinguisher, potable water and drinking cups, anti-bacterial soap, and walkie-talkies. These are located in the MBI Maintenance Building and in the leachate loading area.

4.1 INCIDENT RECOGNITION

Onsite incidents will be addressed in accordance with the Incident Management Plan. These include:

- · Surface fire.
- Oxygenated subsurface fire (subsurface oxidation).
- Personal injury man down, personnel contamination.
- Extreme gas/odor release.
- Collapse (mass movement within landfill limits).
- Slope failure (waste movement outside limits).
- Release of hazardous waste/hazardous substances.

If a potentially hazardous situation arises as indicated by instrument readings, visible contamination, unusual or excessive odors, etc., field personnel shall temporarily cease operations, move away to a safe area and contact the HSO, Bridgeton Landfill employee or contractor supervisor, whichever is immediately available. A list of emergency contacts can be found in **Appendix E**. The HSO or supervisor will then comply with the Site Incident Management Plan.

APPENDICES

APPENDIX A: HEALTH AND SAFETY PLAN (HASP) ACKNOWLEDGMENT FORM BRIDGETON LANDFILL

Each employee conducting fieldwork shall sign this form after the pre-entry HASP briefing is completed and prior to commencing work onsite. This form shall be kept at the site during the work effort. At the conclusion of the project, the form shall be sent to the HSO for inclusion into the project file.

Site Personnel Sign-Off

By affixing your signature to the space below, you acknowledge that you have been trained on the work effort at this site, the potential safety and health hazards to be encountered, methods to prevent exposure to these health and safety hazards, and the contents of the Bridgeton Landfill HASP.

Signature/Date

I understand this briefing and will comply with the safety requirements for this project.

Date: Date: Date: Date: _____ Date: __ Date: _____ Date: ____ Date: _____ Date: Date: _____ Date: Date: Date: _____ Date: Date: _____ Date: _____ Date: _____ Date: _____ Date: _____ Date: _____

Date: _____

Bridgeton Landfill, Bridgeton, Missouri	Page 3
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Retain this form in the project files

APPENDIX B: WEEKLY SAFETY TRAINING ACKNOWLEDGEMENT FORM

SAFETY MEETING TOPIC:			
-			

PROJECT: BRIDGETON LANDFILL

Each employee conducting fieldwork shall sign this form after each Bridgeton Landfill safety training activity is completed. This form shall be kept at the site during the work effort. At the conclusion of the project, the form shall be sent to the HSO for inclusion into the project file.

Site Personnel Sign-Off

By affixing your signature to the space below, you acknowledge that you have been briefed on the safety topic identified at the top of this form.

I understand this briefing and will comply with the safety requirements for this project.

Signature/Date	
	Date:
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	Date:
	Date:
	Date:

Bridgeton Landfill, Bridgeton, Missouri	Page 34
	Date:

^{***}Retain this form in the project files***

APPENDIX C: RESERVED

APPENDIX D: INSTRUMENT DATA FORM

PROJECT: BRIDGETON LANDFILL

DATE:	USER:
CALIBRATION DATE:	CALIBRATED BY:

		11	NSTRUMENT	READINGS		
ACTIVITY	DATE/TIME	O ₂ LEL		CO / H₂S	COMMENTS	
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Retain this form in the project files
(Appendix D information may also be substituted onto downloaded report forms or Well Log report forms)

APPENDIX D

APPENDIX E: EMERGENCY CONTACT INFORMATION

PROJECT: BRIDGETON LANDFILL

EMERGENCY INFORMATION					
Agency, Contact, Facility Name	Phone Number	Hospital Directions			
Bridgeton Police: 314-739-7557	911	Closest Hospital: SSM DePaul Health Center 12303 DePaul Dr. St. Louis, MO 63044 Distance: 2.0 miles (see tear-away map and written directions on last page of HASP)			
Robertson Fire District: 314-291-6670 I 314-575-5011	911	Alternative Hospital:			
Ambulance: 314-291-6670	911	St. Joseph Health Center 300 1 st Capital Dr.			
Closest Hospital: SSM DePaul Health Center	314-344-6000	St. Charles, MO 63301			
Alternative Hospital: St. Joseph Health Center	636-947-5000	Distance: 6.1 miles (see tear-away map and written			
Environmental Manager: Brian Power	314-744-8165	directions on last page of HASP)			
Project Health and Safety Officer: Derek Bouchard	314-302-3634				
Environmental Specialist: Bryan Sehie	314-443-0179				
Site Specialist: Michael Lambrich	314-744-8175				

^{***}Post this information in a conspicuous place at the site.***

^{***}Retain this form in the project files.***

APPENDIX F: INCIDENT REPORT

PROJECT: BRIDGETON LANDFILL

Person Completing this Report	Phone Number ()
Date of Report	Date of Incident
month/day/year	month/day/year
Employee's Information:	
Name	Home Office
Occupation/Job Title	
Where did the incident occur?	
What was the employee doing when the incide	ent occurred?
What was the type of injury or illness?	
	-
What object or substance directly harmed the	employee?

Complacency

Reported by (optional):

Project (optional):

Appendix F: Close Call Report

Project: Bridgeton Landfill

Please complete this form after the occurrence of a Close Call (incident causing injury or property damage that almost happened, or could have been worse).					
Description of Close Call (who, what, where, when, I	now):				
What went right? What could have been done different	ently?				
Safe Start Assessment. Did the incident involve:	Critical error that contributed to incident:				
Rushing	Eyes not on task				
Frustration	Mind not on task				
Fatigue	Line of fire				

Balance/traction/grip

Project Manager (optional):

Today's Date:

APPENDIX G: RESPIRATORY PROTECTION

PROJECT: BRIDGETON LANDFILL

This Respiratory Protection Program specifies standard operating procedures to protect all construction site employees from respiratory hazards, according to the requirements of 29 CFR, which simply refers to 29 CFR 1910.134. Respirators are to be used only where engineering control of respirator hazards is not feasible, while engineering controls are being installed, or in emergencies.

Respirator Selection

Respirators are selected on the basis of respiratory hazards to which the worker is exposed and workplace and user factors that affect respirator performance and reliability.

Selection Procedure Checklist

When selecting any respirator in general:

- Select and provide respirators based on respiratory hazard(s) to which a worker is exposed and workplace and user factors that affect respirator performance and reliability.
- Select a NIOSH-certified respirator. (NIOSH stands for the National Institute for Occupational Safety and Health).
- Identify and evaluate the respiratory hazard(s) in the workplace, including a
 reasonable estimate of employee exposures to respiratory hazard(s) and an
 identification of the contaminant's chemical state and physical form. Consider the
 atmosphere to be immediately dangerous to life or health (IDLH) if you cannot
 identify or reasonably estimate employee exposure.
- Select respirators from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.

When selecting respirators for IDLH atmospheres:

- Provide these respirators:
 - A full facepiece pressure demand self-contained breathing apparatus (SCBA) certified by NIOSH for a minimum service life of 30 minutes.
 - A combination full facepiece pressure demand supplied-air respirator (SAR)
 SCBA with auxiliary self-contained air supply.
- Provide respirators NIOSH-certified for escape from the atmosphere in which they will be used when they are used only for escape from IDLH atmospheres.
- Consider all oxygen-deficient atmospheres to be IDLH. Exception: If we can
 demonstrate that, under all foreseeable conditions, the oxygen concentration
 can be maintained within the ranges specified in Table II of 29 CFR 1910.134
 (i.e., for the altitudes set out in the table), then any atmosphere-supplying
 respirator may be used.

When selecting respirators for atmospheres that are not IDLH:

- Provide a respirator that is adequate to protect the health of the employee and ensure compliance with all other OSHA statutory and regulatory requirements, under routine and reasonably foreseeable emergency situations.
- Select respirators appropriate for the chemical state and physical form of the contaminant.
- For protection against gases and vapors, provide:
 - An atmosphere-supplying respirator.
 - An air-purifying respirator, provided that: (1) The respirator is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant; or (2) If there is no ESLI appropriate for conditions in our workplace, implement a change schedule for canisters and cartridges that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life.
- · For protection against particulates, provide:
 - An atmosphere-supplying respirator.
 - An air-purifying respirator equipped with a filter certified by NIOSH under 30 CFR Part 11 as a high efficiency particulate air (HEPA) filter, or an airpurifying respirator equipped with a filter certified for particulates by NIOSH under 42 CFR 84.
- For contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers, an air-purifying respirator equipped with any filter certified for particulates by NIOSH.

Respirator Types and Uses

The following types of respirators are in use in this facility for the following uses:

Types:

Situation Used:

Organic Vapor Cartridges with Full-Face Respirator Volatile Organic Compounds (VOCs) CO, H₂S, CH4,

SCBA

VOCs

Only NIOSH-certified respirators are selected and used. Where practicable, the respirators will be assigned to individual workers for their exclusive use.

Medical Evaluations

A medical evaluation to determine whether an employee is able to use a given respirator is an important element of an effective Respiratory Protection Program and is necessary to prevent injuries, illnesses and even, in rare cases, death from the physiological burden imposed by respirator use. Persons will not be assigned to tasks requiring the use of respirators nor fit tested unless it has been determined through thorough medical examination by a licensed physician that they are physically able to perform the work and use the respirator. Providing this information to the Site will be the responsibility of each individual's company of employment.

Fit Testing Procedures

Respirators must fit properly to provide protection. If a tight seal is not maintained between the facepiece and the employee's face, contaminated air will be drawn into the facepiece and be breathed by the employee. Fit testing seeks to protect the employee against breathing contaminated ambient air.

In general, fit testing may be either qualitative or quantitative.

- Qualitative Fit Testing (QLFT) involves the introduction of a gas, vapor, or aerosol
 test agent into an area around the head of the respirator user. If that user can
 detect the presence of the test agent through subjective means, such as odor, taste,
 or irritation, the respirator fit is inadequate.
- Quantitative Fit Test (QNFT) involves assessing the adequacy of the respirator
 fit by measuring the amount of leakage into the respirator, either by generating a
 test aerosol as a test atmosphere, using ambient aerosol as a test agent, or
 using controlled negative pressure to measure the volumetric leak rate.
 Appropriate instrumentation is required to quantify respirator fit in QNFT.

Each individual's company of employment must make sure that the individual is fit tested at the following times with the same make, model, style, and size of respirator that will be used:

- Before any employee is required to use any respirator with a negative or positive pressure tight-fitting facepiece.
- Whenever a different respirator facepiece (size, style, model, or make) is used.
- At least annually.
- Whenever the employee and or individual's company of employment reports any visual observations of change in physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.
- When the employee, subsequently after passing a QLFT or QNFT, notifies the company or the HSO that the fit of the respirator is unacceptable. That employee will be retested with a different respirator facepiece.

Individuals using any type of respirator must pass one of the following fit test types that follow the protocols and procedures contained in 29 CFR 1910.134 Appendix A:

- QLFT (Only used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less. May be used to test tight-fitting atmospheresupplying respirators and tight-fitting powered air-purifying respirators if tested in the negative pressure mode).
- QNFT (May be used to fit test a tight-fitting half facepiece respirator that must achieve a fit factor of 100 or greater OR a tight-fitting full facepiece respirator that must achieve a fit factor of 500 or greater OR tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators if tested in the negative pressure mode).

Proper Use Procedures

Once the respirator has been properly selected and fitted, its protection efficiency must be maintained by proper use in accordance with 29 CFR 1910.134(g).

Facepiece Seal Protection

- Do not permit respirators with tight-fitting facepieces to be worn by employees who have:
 - Facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve function.
 - Any condition that interferes with the face-to-facepiece seal or valve function.
- If an employee wears corrective glasses or goggles or other personal protective equipment, ensure that such equipment is worn in a manner that does not interfere with the seal of the facepiece to the face of the user.
- For all tight-fitting respirators, ensure that employees perform a user seal check each time they put on the respirator using:
 - The User Seal Check procedures in 29 CFR 1910.134 Appendix B-1 for facepiece positive and/or negative pressure checks.
 - The manufacturer's recommended user seal check procedures, provided that the manufacturer's procedures are equally effective.

Continuing Respirator Effectiveness

- Appropriate surveillance must be maintained of work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, reevaluate the continued effectiveness of the respirator.
- Ensure that employees leave the respirator use area:
 - To wash their faces and respirator facepieces as necessary to prevent eye or skin irritation associated with respirator use.
 - If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece.
 - To replace the respirator or the filter, cartridge, or canister elements.
- If the employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece, replace or repair the respirator before allowing the employee to return to the work area.

Procedures for IDLH Atmospheres

Ensure that:

- One employee or, when needed, more than one employee is located outside the IDLH atmosphere.
- Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere.
- The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue.
- The employer or designee is notified before the employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue.
- The employer or designee authorized to do so by the company, once notified, provides necessary assistance appropriate to the situation.
- Employee(s) located outside the IDLH atmospheres are equipped with:
 - Pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure SAR with auxiliary SCBA; and either:
 - Appropriate retrieval equipment for removing the employee(s) who
 enter(s) these hazardous atmospheres where retrieval equipment would
 contribute to the rescue of the employee(s) and would not increase the
 overall risk resulting from entry; or
 - Equivalent means for rescue where retrieval equipment is not required under the bullet item above this one.

Maintenance and Care Procedures

In order to ensure continuing protection from respiratory protective devices, it is necessary to establish and implement proper maintenance and care procedures and schedules. A lax attitude toward maintenance and care will negate successful selection and fit because the devices will not deliver the assumed protection unless they are kept in good working order.

Each individual's company of employment shall provide each respirator user with a respirator that is clean, sanitary, and in good working order. It shall be ensured that respirators are cleaned and disinfected using the procedures below:

- In Appendix B-2 of 29 CFR 1910.134.
- Recommended by the respirator manufacturer. These procedures are of equivalent effectiveness as Appendix B-2 of 29 CFR 1910.134.

The respirators shall be cleaned and disinfected at the following intervals:

Respirator Type:	Cleaned and Disinfected at the Following Interval			
Issued for the exclusive use of an employee.	As often as necessary to be maintained in a sanitary condition.			

Issued to more than one employee.	Before being worn by different individuals.
Maintained for emergency use.	After each use.
Used in fit testing and training.	After each use.

Storage

Storage of respirators must be done properly to ensure that the equipment is protected and not subject to environmental conditions that may cause deterioration. Each individual's company of employment shall ensure that respirators are stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they are packed or stored in their original packaging to prevent deformation of the facepiece and exhalation valve. In addition, emergency respirators shall be kept accessible to the work area; stored in a crew truck or project site trailer that are clearly marked as containing emergency respirators; and stored in accordance with any applicable manufacturer's instructions.

Inspection

In order to assure the continued reliability of respirator equipment, it must be inspected on a regular basis. The frequency of inspection is related to the frequency of use. Below is the minimum inspection frequency to be implemented at the site:

Respirator Type:	Inspected at the Following Frequencies:			
All types used in routine situations.	Before each use and during cleaning.			
Maintained for use in emergency situations.	At least monthly and in accordance with the manufacturer's recommendations, and checked for proper function before and after each use.			
Emergency escape- only respirators.	Before being carried into the workplace for use.			

Respirator and back-up respirator inspections include a check:

- For respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the facepiece, head straps, valves, connecting tube, and cartridges, canisters or filters.
- Of elastomeric parts for pliability and signs of deterioration.
- For SCBAs, in addition to the above, monthly, we maintain air and oxygen cylinders in a fully charged state and recharge when the pressure falls to 90 percent of the manufacturer's recommended pressure level and determine that the regulator and warning devices function properly.

Repairs

Respirators that fail an inspection or are otherwise found to be defective shall be removed from service and discarded, repaired, or adjusted in accordance with the following procedures:

- Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and only with the respirator manufacturer's NIOSH-approved parts designed for the respirator.
- Repairs must be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed.
- Reducing and admission valves, regulators, and alarms must be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer.

Discarding of Respirators

Respirators that fail an inspection or are otherwise not fit for use and cannot be repaired must be discarded.

Air Quality Procedures

When atmosphere-supplying respirators are being used to protect employees, it is essential to ensure that the air being breathed is of sufficiently high quality. Any atmosphere-supplying respirators used on the site shall include coverage of the following OSHA requirements:

Compressed Air, Compressed Oxygen, Liquid Air, and Liquid Oxygen Used for Respirators:

- Compressed and liquid oxygen must meet the United States Pharmacopoeia requirements for medical or breathing oxygen.
- Compressed breathing air must meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include:
 - Oxygen content (v/v) of 19.5-23.5 percent.
 - Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less.
 - Carbon monoxide content of 10 ppm or less.
 - Carbon dioxide content of 1,000 ppm or less.
 - Lack of a noticeable odor.
- Ensure that compressed oxygen is not used in atmosphere-supplying respirators that have previously used compressed air.
- Ensure that oxygen concentrations greater than 23.5 percent are used only in equipment designed for oxygen service or distribution.

Cylinders Used to Supply Breathing Air to Respirators:

 Cylinders must be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR 173 and 178).

- Cylinders of purchased breathing air must have a certificate of analysis from the supplier that the breathing air meets the requirements for Grade D breathing air.
- The moisture content in the cylinder must not exceed a dew point of -50 deg F (-45.6 deg C) at 1 atmosphere pressure.

Compressors (Not anticipated for use at the Bridgeton Landfill):

- Ensure that compressors used to supply breathing air to respirators are constructed and situated so as to:
 - Prevent entry of contaminated air into the air supply system.
 - Minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F (5.56 deg. C) below the ambient temperature.
 - Have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters must be maintained and replaced or refurbished periodically following the manufacturer's instructions.
 - Have a tag containing the most recent change date and the signature of the person authorized by our company to perform the change. The tag must be maintained at the compressor.
- For compressors that are not oil-lubricated, ensure that carbon monoxide levels in the breathing air do not exceed 10 ppm.
- For oil-lubricated compressors, use a high-temperature or carbon monoxide alarm, or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply must be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.

Breathing Air Couplings:

 Ensure that breathing air couplings are incompatible with outlets for nonrespirable worksite air or other gas systems. No asphyxiating substance must be introduced into breathing air lines.

Breathing Gas Containers:

 Use breathing gas containers marked in accordance with the NIOSH respirator certification standard, 42 CFR 84.

Filters, Cartridges, and Canisters:

 Ensure that all filters, cartridges and canisters used in the workplace are labeled and color-coded with the NIOSH approval label and that the label is not removed and remains legible. New respirator filter cartridges shall be used for each application with breakthrough times monitored.

Training

Employee training is an important part of the respiratory protection program and is essential for correct respirator use. Each individual's company of employment shall provide the proper training to all its employees who will be conducting work while using any type of respirator, and all employees who will provide support for those wearing any type of respirator.

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Cables

Wiring Harness

Tires and Wheels

Placards and Warnings

Outriggers/Stabilizers (if equipped)

Operational Manual

Guardrail System

Locking Gate
Tilt Alarm

Loose or Missing Parts (locking pins, bolts, etc.)

APPENDIX H: AERIAL LIFT/INDUSTRIAL TRUCK INSPECTION CHECKLIST

Pleas	ease review checklist before operating vehicle. Week					of:		
	Miles/H				ours:			
Place	Place your initials in the appropriate box:							
Shift	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	
1							59	
2								
3								
Vehicle Description: Make: Capacity: Model: Serial #: Check One Gas Diesel LP Battery								
#		Inspect	ion Item Num	bers			,	
1	Operating Controls							
2	Emergency Controls							
3	Safety Devices, Horns, Alarms, and Seat Belts							
4	Personal Protective Devices							
5	Pneumatic System (leaks)							
6	Hydraulic System (leaks)							
7	Fuel System (leaks)							

Report all deficiencies to your supervisor immediately.

NOTED DEFICIENCIES:

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APPENDIX I: HAZWOPER TRAINING LOG

PROJECT: BRIDGETON LANDFILL

Bridgeton Landfill Hazardous Waste Personnel Hazardous Waste Operator Training [EBG2]

Bridgeton Landfill Employee	Job Title/Description	Date of 40-Hour HAZWOPER Training (if not received, include date planned)	Date of Most Recent 8-Hour Update
Brian Power	Environmental Manager	February 2014	2/4/2014
Bryan Sehie	Environmental Specialist		2/5/2014
Derek Bouchard	Health and Safety Officer Training Coordinator	December 2007	1/21/2014
Mike Lambrich	Environmental Specialist		2/5/2014
Dusty Smith	Hazardous Waste Technician	February 2014	2/5/2014
Ryan Ayers	Hazardous Waste Technician	February 2014	2/5/2014
Ryan Daniels	Hazardous Waste Technician	February 2014	2/4/2014
David Voyles	Hazardous Waste Technician	February 2014	2/4/2014
Stephen Lee	Hazardous Waste Technician	February 2014	2/4/2014
Devin Hummel	Hazardous Waste Technician	February 2014	2/4/2014
Forrest Booth	Hazardous Waste Technician	February 2014	2/5/2014

APPENDIX J: EMPLOYEE POSITION DESCRIPTIONS

PROJECT: BRIDGETON LANDFILL



POSITION DESCRIPTION

DEPARTMENT: Engineering

POSITION TITLE: Environmental Manager

REPORTS TO: Regional Engineer

SUPERVISES: Yes EXEMPT STATUS: Exempt

POSITION SUMMARY: The Environmental Manager is responsible for the preparation of the Landfill budget, managing all spending for the Engineering department, and overseeing consultants and contractors during site development. The Environmental Manager is also responsible for permitting and ensuring the Landfill remains in compliance with all applicable regulations during operation.

PRINCIPAL RESPONSIBILITIES:

- Manages construction projects for Landfill cells and sites, including capacity calculations, scheduling/timeline, management of third-party CQA and contractors, and resource and material coordination.
- Prepares Landfill construction and ongoing operational budgets.
- Maintain financial responsibility for construction/cell development, closure/post-closure, engineering, operations, and cost tracking.
- Coordinates completion of permit applications and designs, including regulatory interface, site expansion, modification or changes to the operating plan application, and other related data.
- · Prepares notifications/responses to regulatory inspections, administrative warnings.
- Assists Landfill and site Managers with development of fill sequencing plans.
- Participates in review of targeted acquisitions, including Phase I assessment/property survey coordination, engineering review of design and operations, and pro-forma modeling assistance.
- Performs ongoing public relations and due diligence activities through communication with corporate office, regulatory agency representatives, third party consultants and investors.
- Completes monthly soil tracking reports and other status reports.
- Regularly supervises Environmental Technicians and Specialists, including responsibility
 for hiring, training, mentoring, developing, scheduling, directing, managing performance
 and other related issues; review the work of, and is accountable for the performance of
 Environmental Technicians and Specialists.
- Attends regulatory and association sponsored informational and policy meetings.
- Ensures continued compliance by coordinating air, water monitoring, environmental data review and reporting.
- Performs other job-related duties as assigned.

EXPERIENCE, EDUCATION, CERTIFICATION: Required:

- · Bachelor's degree in Engineering, Geology, Biology or related science.
- Minimum of 4 years of experience in landfill engineering or environmental compliance in air, water, and solid waste.

Preferred:

• Certified Professional Engineer and/or Certified Professional Geologist designation. Previous experience in the waste industry.

OTHER KNOWLEDGE AND COMPETENCIES:

- Thorough knowledge of environmental regulations relating to air, water, solid waste, and material recovery/recycling.
- Strong written and oral communication skills.
- Effective interpersonal communication across various levels of the organization and with external customers, vendors and government agency representatives.
- · Strong project management skills.
- Strong analytical skills and a focus on adding value to the Company.
- · Ability to effectively manage multiple projects and meet deadlines.
- Ability to read, analyze, and interpret business documents, professional journals, technical procedures, and governmental regulations.

The statements herein are intended to describe the general nature and level of work being performed by employees, and are not to be construed as an exhaustive list of responsibilities, duties, and skills required by personnel so classified. Furthermore, they do not establish a contract for employment and are subject to change at the discretion of the Company.



POSITION DESCRIPTION

POSITION TITLE: Environmental Specialist - Corporate

EFFECTIVE DATE: 07/2012

FUNCTIONAL AREA: Engineering

REPORTS TO:

Senior Manager, Environmental Management

SUPERVISES:

N/A

Exempt

FLSA STATUS:

JOB CODE:

POSITION SUMMARY:

This role supports the Engineering Department with landfill and environmental remediation budgeting, construction management, cash flow tracking and forecasting, and technical issues associated with landfill leachate and gas management. The specialist will have daily interaction with the corporate and field staff on a variety of construction and technical issues.

PRINCIPAL RESPONSIBILITIES:

- Negotiates modified contract terms from standard construction and consulting documents, responsible for obtaining approval from legal and risk departments as needed.
- Assists Procurement Team with technical review of specifications and vendor selection on national procurement contracts.
- Reviews Environmental Due Diligence reports associated with property acquisition and divestitures.
- Prepares construction cost summaries and budget models for potential landfill acquisitions.
- Prepares insurance cost recovery documents as part of ongoing Pollution Liability Insurance claims, including preparing construction project descriptions, timelines, justifications and cost summaries.
- Coordinates preparation of TSDF audits and disposal facility audits by internal or external technical resources for new audits when required by Special Waste Department.
- Prepares summaries of various construction, monitoring and design Best Practices and compiles these summaries into a resource library for Corporate and Field Based Engineering Team.
- Coordinates updates to the Standard Operating Procedures documents produced by the Engineering Department, including the landfill gas well field SOP, the air compliance SOP, and landfill gas system standard design manual. Responsible for consultant coordination to produce updated document.
- Assists Director of Engineering with performance of annual Engineering Budget Process. Duties include:
 - Developing updates and changes to the Engineering Budget Model;
 - o Developing training material for budget model, and conducting training;
 - o Reviews models for completeness and variance analysis;
 - Reviewing comments and collation of data from Active Landfill Planning process into reports for senior management;
 - Assisting Engineering, Accounting, Financial Analysis and Planning Departments with the review of budgets, including preparation of variance summary documents, and SOX documentation reviews.

- Coordinates and over sees production of monthly engineering cash flow forecast, including variance and outlier analysis, consolidation of information into dashboard summaries. Assists field engineering and controllership teams with reconciliation of variances.
- Reviews alternate technology proposals for leachate treatment, gas extraction or other landfill applications.
- Perform other job-related duties as assigned or apparent.

EXPERIENCE, EDUCATION, CERTIFICATION:

Required:

Bachelor's degree in Engineering, Geology, Biology or related science.

Preferred:

- Two years' experience in landfill operations or environmental compliance in air, water, and land.
- Certified Professional Engineer and/or Certified Professional Geologist designation obtained or in progress.

OTHER KNOWLEDGE, SKILLS, ABILITIES:

Required:

- Effective interpersonal communication skills across various levels of the organization, external customers, and representatives of government agencies. Communication tone must encourage collaboration and recognize all levels as team members and customers, while maintaining a professional representation suitable for department.
- Ability to write reports and correspondence with minimal direction.
- Must be a proven self-starter with an appropriate sense of urgency and customer focus.
- Ability to solve problems and make improvement recommendations as needed.
- Excellent organizational skills while managing multiple tasks in a high-volume, fastpaced environment, maintaining attention to detail, while meeting deadlines. Sufficiently process oriented to track progress and own process for several contractual and compliance based programs.
- Strong ethics and the ability to keep information confidential.
- Intermediate MS Office experience including Word, Excel and Access. Proficiency with spreadsheet and database management tools sufficient to run query reports and identify and repair data entry errors.
- Familiarity with SharePoint (or other web based portal and collaboration tool) and ability to perform basic administrative functions, including access rights management.

The statements herein are intended to describe the general nature and level of work being performed by employees, and are not to be construed as an exhaustive list of responsibilities, duties, and skills required by personnel so classified. Furthermore, they do not establish a contract for employment and are subject to change at the discretion of the company.



POSITION DESCRIPTION

Position Title: Environmental Technician Effective: March 2013

Department: Operations

Reports to: Environmental Manager and Ops Manager, Site Manager or GM

Supervises: No

Exempt Status: Non-Exempt

POSITION SUMMARY: The Environmental Technician is responsible for the safe operation and maintenance of landfill gas extraction systems, leachate collections systems and other related systems at Republic Services' landfills. The position is accountable for the ongoing monitoring of such systems, ensuring that all work adheres to safety regulations, as well as federal and state requirements.

REPRESENTATIVE RESPONSIBILITIES:

- Conducts, or assists with, environmental sampling that may include groundwater, surface water, air quality and gas migration.
- Measures and records gas levels in landfill well fields and at probes in the landfill boundary to ensure the ongoing compliance with applicable safety regulations, as well as federal and state requirements.
- Troubleshoots and corrects landfill gas extraction systems when necessary; report more complicated issues to management to ensure timely correction.
- Manages and troubleshoots leachate system to ensure it continues to operate in accordance with safety standards, federal and state regulations.
- Performs landfill surveying activities as required.
- Prepares and submits required reporting data relative to landfill gas extraction, leachate and other related systems.
- Performs all responsibilities in a safe and efficient manner, ensuring adherence to all safety regulations that govern job performance; ensure ongoing compliance with all applicable federal and state requirements.
- Performs other job-related duties as required.

EXPERIENCE, EDUCATION AND

CERTIFICATION: REQUIRED:

- · High School diploma or GED.
- Minimum of 1 year of experience working at a site regulated by OSHA.
- Minimum of 1 year of experience working with landfill gas extraction and/or leachate systems.

PREFERRED:

- Bachelor's Degree in Science.
- Minimum of 2 years of experience working at sites regulated by OSHA.
- Minimum of 2 years of experience working with landfill gas extraction and/or leachate systems.

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OTHER KNOWLEDGE, SKILLS AND ABILITIES:

- Good time management skills to ensure assigned responsibilities are completed in an efficient and safe manner.
- Good communication skills; is able to effectively communicate operating issues to management.
- Good follow through ability; adheres to work schedule and follows through on challenges as they arise.
- Ability to adhere to Company policies and rules set forth; promotes the Company's safety standards; works with a sense of honesty and trustworthiness.
- · Maintains a feeling of pride in work; strives to achieve all goals.

The statements used herein are intended to describe the general nature and level of the work being performed by an employee in this position, and are not intended to be construed as an exhaustive list of responsibilities, duties and skills required by an incumbent so classified. Furthermore, they do not establish a contract for employment and are subject to change at the discretion of the Company.



POSITION DESCRIPTION

Position Title: General Laborer Department: Operations

Reports To: Site or Operations Spvr/Mgr

Supervises: No Exempt Status: Non-Exempt

POSITION SUMMARY: A General Laborer is responsible for safely and efficiently performing general labor duties at a hauling company, transfer station, materials recycling facility (MRF) or landfill. Responsibilities may include such things as yard clean-up, fueling vehicles and equipment, general vehicle operation, general office maintenance and other related duties.

PRINCIPAL RESPONSIBILITIES:

Safely and efficiently perform assigned responsibilities to include such duties as:

- o Clean up work areas;
- o Fuel vehicles and equipment;
- Clean track on track type and related equipment;
- Perform yard work, including mowing and paper pick up;
- Operate general site vehicles and equipment, such as water trucks, pick-up trucks, sweepers, mowers, trimming equipment, etc.;
- Perform general office maintenance and repairs, including painting and janitorial work:
- Install temporary wind fences, as required;
- o Direct traffic at the site as necessary; and
- Perform other job-related duties as assigned.

EXPERIENCE, EDUCATION AND CERTIFICATION: REQUIRED:

None.

PREFERRED:

- · High School Diploma or GED.
- · Valid driver's license.

OTHER KNOWLEDGE, SKILLS AND ABILITIES:

- Ability to adhere to work schedule and follows through on challenges as they arise.
- Ability to adhere to Company policies and rules that are set forth; promotes the Company's safety standards; works with a sense of honesty and trustworthiness.
- Maintains a feeling of pride in work; strives to achieve all goals.

The statements used herein are intended to describe the general nature and level of the work being performed by an employee in this position, and are not intended to be construed as an exhaustive list of responsibilities, duties and skills required by an incumbent so classified. Furthermore, they do not establish a contract for employment and are subject to change at the discretion of the Company.



Appendix K

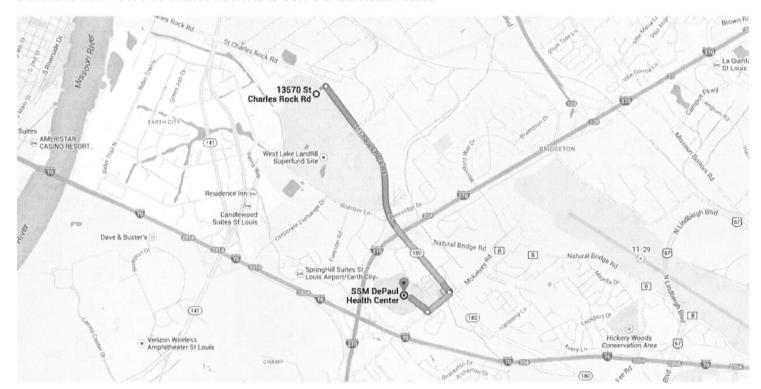
CONTRACTOR NOTICE OF SAFETY VIOLATION

Site:	Date:
Issued by:	on behalf of Bridgeton Landfill, LLC
Contractor:	
Contractor Representative:	
Your Company has been found to be in specified below.	violation of the site health and safety requirements, as
Violation(s):	
Corrective Action(s) & date complete	d:
The signature below of the Contractor F	Representative certifies that all of the above-listed items
have been corrected as indicated.	
Signature:	Date:
Received by Company:	
Signature:	Date:

LAST PAGE - INCLUDE TEAR SHEET WITH DIRECTIONS TO LOCAL MEDICAL FACILITIES

5/12/2014 Google

Primary Hospital - SSM DePaul Health Center Drive 2,3 mi, 5 min Remove this and take to the hospital Directions from 13570 St Charles Rock Rd to SSM DePaul Health Center



O 13570 St Charles Rock Rd

Bridgeton, MO 63044

1. Head southeast on St Charles Rock Rd toward Taussig Rd

5/12/2014

Google Maps

2. Turn right onto McKelvey Rd

O.2 mi

3. Take the 2nd right onto De Paul Dr

Destination will be on the left

0.2 mi

SSM DePaul Health Center

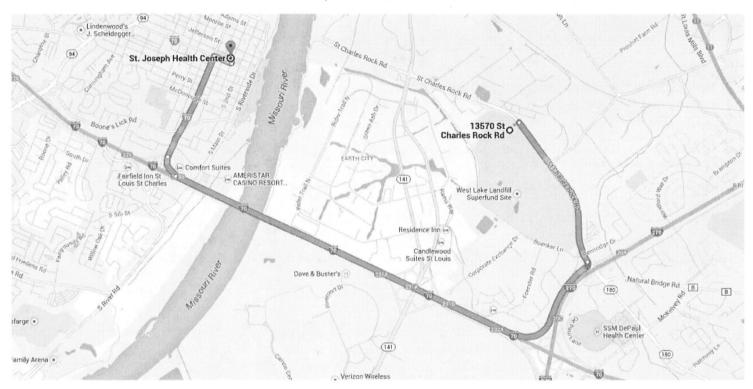
12303 De Paul Dr, Bridgeton, MO 63044

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2014 Google

5/12/2014 Google

Alternate Hospital - SSM DePaul Health Center_{Drive 6.1 mi, 9 min} Remove this and take to the hospital Directions from 13570 St Charles Rock Rd to St. Joseph Health Center



O 13570 St Charles Rock Rd

Bridgeton, MO 63044

1. Head southeast on St Charles Rock Rd toward Taussig Rd

1.2 mi

5/12/2014

Google Maps

2. Take the ramp onto I-70 W ٨ 3.7 mi 3. Take exit 229B for I-70 Loop N/Fifth St 0.2 mi 4. Turn right onto S 5th St 0.8 mi 5. Turn right onto First Capitol Dr 0.1 mi 6. Turn left at S 3rd St Destination will be on the right 108 ft

St. Joseph Health Center

300 First Capitol Dr, St Charles, MO 63301

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

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